

WHAT IS CLAIMED IS:

- 1 1. A method for executing a query, comprising:
 - 2 matching a query to an outlier materialized query table;
 - 3 searching the query for a source predicate;
 - 4 searching the outlier materialized query table for a target column that corresponds to a source column in the source predicate;
 - 5 deriving a new range predicate based on the target column; and
 - 6 introducing the new range predicate into the query.

- 1 2. The method of claim 1, further comprising:
 - 2 merging the new range predicate into the query.

- 1 3. The method of claim 1, further comprising:
 - 2 generating a bounds view from source predicate information and range binding information collected for the target column, wherein the bounds view computes a lower bound and an upper bound for the new range predicate, and wherein the bounds view may be generated using at least one of a range multiplying technique or a range stretching technique.

- 1 4. The method of claim 1, wherein matching the query to an outlier materialized query table further comprises:
 - 3 creating a first query graph model representation of the query;
 - 4 creating a second query graph model representation of the outlier materialized query table; and
 - 5 comparing the first query graph model and the second query graph model.

- 1 5. The method of claim 1, wherein there is a join in the outlier materialized query table and wherein matching further comprises:

1 determining that join predicates other than the outlier predicate in the outlier
2 materialized query table have matching predicates in the query.

1 6. The method of claim 5, wherein the new range predicate is derived by
2 selecting the target column from base tables involved in the join.

1 7. The method of claim 6, wherein the target column is from a table other
2 than the one in which the source column resides.

1 8. The method of claim 6, wherein the target column is from a same table as
2 the one in which the source column resides.

1 9. The method of claim 1, wherein the query contains a correlation predicate.

1 10. The method of claim 9, further comprising:
2 translating the correlation predicate into a join predicate in a context of the outlier
3 materialized query table;
4 when the translated join predicate matches the join predicate in the outlier
5 materialized query table, deriving a new predicate for the correlation predicate in a child
6 query block using a source predicate on a quantifier of a parent query block; and
7 wherein searching the query for the source predicate further includes searching
8 the parent query block for the source predicate.

1 11. An article of manufacture including a program for executing a query,
2 wherein the program causes operations to be performed, the operations comprising:
3 matching a query to an outlier materialized query table;
4 searching the query for a source predicate;
5 searching the outlier materialized query table for a target column that corresponds
6 to a source column in the source predicate;

1 deriving a new range predicate based on the target column; and
2 introducing the new range predicate into the query.

1 12. The article of manufacture of claim 11, wherein the operations further
2 comprise:
3 merging the new range predicate into the query.

1 13. The article of manufacture of claim 11, wherein the operations further
2 comprise:
3 generating a bounds view from source predicate information and range binding
4 information collected for the target column, wherein the bounds view computes a lower
5 bound and an upper bound for the new range predicate, and wherein the bounds view
6 may be generated using at least one of a range multiplying technique or a range
7 stretching technique.

1 14. The article of manufacture of claim 11, wherein the operations for
2 matching the query to an outlier materialized query table further comprise:
3 creating a first query graph model representation of the query;
4 creating a second query graph model representation of the outlier materialized
5 query table; and
6 comparing the first query graph model and the second query graph model.

1 15. The article of manufacture of claim 11, wherein there is a join in the
2 outlier materialized query table and wherein the operations for matching further comprise
3 determining that join predicates other than the outlier predicate in the outlier materialized
4 query table have matching predicates in the query.

1 16. The article of manufacture of claim 15, wherein the new range predicate is
2 derived by selecting the target column from base tables involved in the join.

1 17. The article of manufacture of claim 16, wherein the target column is from
2 a table other than a table in which the source column resides.

1 18. The article of manufacture of claim 16, wherein the target column is from
2 a same table as the one in which the source column resides.

1 19. The article of manufacture of claim 11, wherein the query contains a
2 correlation predicate.

1 20. The article of manufacture of claim 19, wherein the operations further
2 comprise:
3 translating the correlation predicate into a join predicate in a context of the outlier
4 materialized query table;
5 when the translated join predicate matches the join predicate in the outlier
6 materialized query table, deriving a new predicate for the correlation predicate in a child
7 query block using a source predicate on a quantifier of a parent query block; and
8 wherein searching the query for the source predicate further includes searching
9 the parent query block for the source predicate.

1 21. A system for executing a query, comprising:
2 means for matching a query to an outlier materialized query table;
3 means for searching the query for a source predicate;
4 means for searching the outlier materialized query table for a target column that
5 corresponds to a source column in the source predicate;
6 means for deriving a new range predicate based on the target column; and
7 means for introducing the new range predicate into the query.